

### **Remarks**

Claims 11, 12, 15 - 18, and 22 are pending. Favorable consideration is respectfully requested.

Claim 11 has been amended to include the limitations of former claims 12 and 21. Redundant definitions have been deleted. No new matter is added. It is now respectfully solicited that Applicants' examples and comparative examples, from the specification and the Rule 132 Declaration of Dr. Christoph Briehn are commensurate in scope with the amended claims, and show surprising and unexpected results which render the claims patentable.

The claims had been rejected over Fukushima et al. U.S. Patent No. 6,306,502 ("*Fukushima*"). Applicants respectfully traverse this rejection, not only in view of the remarks presented in the prior paragraph, but also in view of the additional remarks which follow.

Applicants acknowledge that the  $\alpha$ -silanes used in functionalizing their silica and silicone resins are within the very broad formula disclosed by *Fukushima*. However, once again, it is emphasized that *Fukushima* did not disclose any subgenus of  $\alpha$ -silanes from the many silanes within this broad formula, nor did he name or exemplify a single  $\alpha$ -silane.

It is not correct that *Fukushima* teaches that higher scratch resistance is due to the functionalized particles which he prefers. This is very clear from his discussion of the prior art in columns 1 and 2. For instance, in column 2, colloidal silica modified with a free radically-polymerizable silane is disclosed in column 2, lines 16- 23. U.S. Patent No. 5,258,225 and 5,426,131 (related as divisionals) disclose the same type of functionalized silica as used by *Fukushima*, colloidal silica reacted with methacryloxypropyltrimethoxysilane (MAPTS). The *Fukushima* inventors had already proposed a "better" functionalized silica, functionalized with MAPTS, in column 2, lines 31 - 43. In the paragraph beginning at column 2, line 53, *Fukushima* indicates that his previously disclosed improved functionalized silica still has not overcome the problems of coating compositions, particularly phase separation, and in column 2, line 66 to

column 3, line 9, describes the improvement: the combined use of a poly(acryloyloxyalkyl)-isocyanurate and a urethane poly(meth)acrylate having an alicyclic skeleton. Thus, as Applicants have previously stated, *Fukushima* does not teach modifying the silica to achieve a superior coating, but modifying the resin system as described above.

Contrary to the opinion at the Office, Applicants respectfully submit that there has been a continuing need for improved scratch resistance of coatings. This is evidenced by the Briehn Declaration in paragraph 3 beginning on line 2. Dr. Briehn is very experienced in the coating field, and this evidence must be given great weight. To say that the cited reference such as Jin 2009/0297839 and Tamaki 7,524,562 have solved this long felt need is contrary to the evidence provided in the form of the Briehn Declaration, and respectfully, contrary to common knowledge. Until virtually diamond-hard organic coatings have been devised, which are practical in application as well as cost-effective, this long felt need for higher scratch resistance will continue. Each subsequent patent which discloses harder, more scratch resistant coatings, will only temporarily "moderate" this need, until the next technological improvement comes along. The case law is replete with cases involving long felt need, and none of these cases have ever stood for either the proposition that an earlier reference had already satisfied this need, or that the claimed invention under review must totally satisfy the need. Technology advances incrementally, and there are few instances where a truly quantum leap takes place. Even in such cases, improvement is still desired.

As anyone who has been through a car wash with a new car, or who has dropped a sponge on the ground and subsequently scratched the car finish while washing the car can attest, scratch resistance of car finishes and other coatings is still a long way from being perfect. There was and is a long felt need for improving coating scratch resistance.

One skilled in the art, reading *Fukushima*, would conclude that it is not the functionalized silica which creates better coatings, but the resin system used with the particles. This is supported by the sections of *Fukushima* cited previously, which disclose use of prior art functionalized silica, which is also used in all of the *Fukushima* examples. Moreover, it is not true that a reference with a broad disclosure singles out all the individual compounds or subsets

thereof within the broad teachings of the reference. This idea has been rejected numerous times by the Federal Circuit and its predecessor Court, the CCPA, and even more recently by the KSR decision and decisions subsequent thereto. For example, it has been held that a generic disclosure which encompasses a vast number of compounds does not describe all compounds embraced therein merely because they are within the scope of the formula, *In re Petering*, 301 F.2d 676 (CCPA 1962); *E.I. duPont de Nemours & Co. v. Ladd, Com'r. Pats.*, 328 F.2d 547 (CA-2 1964); and does not highlight a claimed mixture from among dozens disclosed by a reference, *In re Kollman*, 592 F.2d 48 (CCPA 1979); or where one skilled in the art would have to choose judiciously from a genus of possibilities. *In re Sivaramakrishnan*, 673 F.2d 1382 (CCPA 1982).

In *KSR*, the Supreme Court held that a case of obviousness would be established when there was a finite, limited number of possibilities, and the result was predictable. In a recent case subsequent to *KSR*, the Federal Circuit remanded the Board of Appeals affirmance of a rejection for reconsideration, when the Examiner and Board had concluded that the *KSR* finite, limited number of possibilities was three, while in reality there were six. *In re Chapman*, Slip Opinion, 2009 - 1270 (Fed. Cir. February 24, 2010). The difference between three and six is very small. Much, much, much smaller than the virtually infinite number of possibilities here, yet remand was required to reconsider obviousness.

Here, the exceptionally broad formula of the functionalizing agents disclosed by *Fukushima* to modify silica include a simply enormous number of species. This is not the finite, limited number of *KSR*, and far greater than the limited dozens of *Kollman*.

One skilled in the art, viewing *Fukushima*, would not be motivated to modify the silica in any way, since *Fukushima* indicates that the silica is satisfactory; only the resin system requires change. If one were somehow motivated to alter the silica, why would one chose a very small subgenus of the many functionalized agents broadly disclosed by *Fukushima*, a subgenus not identified, and not exemplified?

The Advisory Action indicated that in the belief of the Office, Applicants' showing of unexpected results was not commensurate with the scope of the claims, for example, with respect to the particular  $\alpha$ -silane and the metal oxide particle. The claims have been considerably restricted, and now include only  $\alpha$ -silanes which have been exemplified, and the particles have been limited to fumed silica, colloidal silica, and silicone resin particles. Applicants respectfully submit that this showing is indeed commensurate with the scope of the claims as amended.

As a final note, *KSR* indicated that when there were only a finite, limited number of possibilities (which is not the case here), and when the result was predictable, the invention was obvious. Here, however, the result was not predictable. One skilled in the art, reading *Fukushima*, would not expect that modifying the filler with an  $\alpha$ -silane would make any difference. That it did is not predictable; it is unpredictable.

Applicants submit that the claims are now in condition for Allowance, and respectfully request a Notice to that effect. If the Examiner believes that further discussion will advance the prosecution of the Application, the Examiner is highly encouraged to telephone Applicants' attorney at the number given below.

Respectfully submitted,

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